

3.0 SCOPE OF WORK

Scope of Work for Professional Land Surveying Services

3.1 REFERENCE TO LAWS

All survey work will be performed in accordance with New Jersey laws, court rulings and administrative codes pertaining to land surveying: NJSA 45:8 et seq., NJAC 13:40-1.1 et seq., the Map Filing Law, NJSA 46:23-9.9, and other laws pertaining to this professional activity. State Government is exempted from certain statutory laws and administrative rules, and this Scope of Work is written to minimize adverse impact of such exemption.

The Contractor shall be required to obtain and maintain, during the term of this contract, all licenses, permits, certifications, authorizations, or any documents required by federal authorities, state authorities, county and municipal governments, and international authorities, whenever necessary, to perform this contract.

3.2 REFERENCE TO SPECIFICATIONS

All requirements of accuracy and standards for conventional surveying methods such as traversing, triangulation or trilateration, or for Global Positioning System (GPS) surveying methods shall provide similar positional accuracy that would meet or exceed the Federal Standard for Third Order, Class I accuracy as stated in "Classifications, Standards of Accuracy and General Specifications of Geodetic Control Surveys", US Department of Commerce, NOAA, NOS, Rockville, MD.

3.3 BASIS OF BEARINGS

The basis of bearings for all surveys performed under this contract will be the New Jersey Plane Coordinate System NAD 1983, unless the site-specific RFP or Notification of Engagement award specifies an alternate bearing system. NAD 1927 Datum may be projected/converted to NAD 1983 Datum using the Federal CORPSCON software, or its substantial equivalent, to make this conversion. The grid factor shall be applied to the Northing and Easting values in US Survey Feet of the parcel's description point of beginning, but not to horizontal survey distances in US Survey Feet. The north arrow shown on the plan must indicate the Bearing Base or reference north.

3.4 TYPES OF SURVEY ACTIVITIES THAT MAY BE REQUIRED BY THIS CONTRACT:

3.4.1 CONTROL SURVEYS – NEW JERSEY STATE PLANE COORDINATE SYSTEM NAD 83

The Using Agency shall provide specific guidelines and specifications to the Contractor for any control/GPS surveys that may be requested, independent of Property Survey work in a site-specific engagement.

Relative to Property Surveys, Control Survey work is required to obtain the basis of the bearing system or north reference. The Description Point of Beginning shall also include NJSPCS Grid coordinate values stated in US Survey feet, stated to two decimal places. All property surveys shall be described in this modified NJSPCS NAD 83 bearing system with all ground distances in US Survey feet stated to two decimal places. Published state and federal control monument location and control data are the preferred starting data for Control Surveys, and can be obtained from the New Jersey Department of Transportation, Geodetic Survey division. Prior land survey work prepared for NJDEP may also be used for starting data, however surveyor will be obligated to verify that bearing base and coordinate values are correct whenever published information is not used as the source and basis of the NJSPCS NAD 83 coordinate system. The data used and other requirements may be specifically waived or modified by the Using Agency.

In all cases, the graphic north arrow on the plan must identify the bearing system and, when applicable, NJSPCS NAD 83 and adjustment basis. Additionally the plan must contain a factual note that explains how the bearing system for the Project Area was established and identifies the state or federal control stations used. If an alternate system is specified by the Using Agency, the filed map number or recording information of the deed used must be stated in a note and labeled on the north arrow.

All requirements for positional accuracy shall meet or exceed the former Federal Standard for Third Order, Class I accuracy whether conventional surveying methods including traversing, triangulation or trilateration or modern surveying methods of using Global Positioning System GPS are used.

3.4.2 PROPERTY SURVEYS

Control Survey work is also required to obtain the basis of bearings or north reference and beginning coordinate values, which shall be NJSPCS NAD 83 for all property surveys, unless specifically waived or modified by the Using Agency at the time a site-specific engagement is requested.

The New Jersey Licensed Land Surveyor is responsible for obtaining all records, measurements, and evidence to prepare a correct and accurate land survey, for providing reproducible copies and paper copies of the land survey plans that depict the results of the survey, and for preparing and providing the corresponding Description of Property, prepared on company letterhead for the deed of conveyance.

All deliverables must be received by the Using Agency within the time specified in the Engagement Award and before the passing of the Due Date.

All property lines of the surveyed parcel must form closed polygons: all sides must be defined by mathematical survey expressions with angular units being degrees, minutes, and whole seconds of arc. Horizontal distances, vertical elevations, radii of curves, lengths of arc, and New Jersey Plane Coordinate values of Northing and Easting shall be stated in horizontal ground US Survey feet stated to two decimal places.

All requirements of accuracy and standards, whether conventional surveying methods of traversing, triangulation, trilateration, or Global Positioning System (GPS) methods are used, shall provide similar positional accuracy that would meet or exceed the former Federal Standard for Third Order, Class I accuracy.

Unless otherwise directed by the Using Agency in any site-specific RFP, a separate plan of survey and description of property shall be prepared for each tax lot or group of contiguous tax lots in common ownership. Lots that are in common ownership but are not contiguous may be grouped onto a single plan only if detail and clarity of information is not sacrificed when the scale of the plan is reduced.

The New Jersey Licensed Land Surveyor shall, on behalf of the Using Agency, file each plan of survey that has been prepared in accordance with Green Acres Guidelines for open space or recreational use of property with the county recording officer in accordance with specific portions of the New Jersey Map Filing Law, unless otherwise directed by the Using Agency in any site-specific RFP. Such plans shall be presented for filing within 30 days of notification of closing by the Using Agency.

A metes and bounds description of the property surveyed is required for every property survey conducted, unless specifically waived or modified by the Using Agency at the time a site-specific engagement is requested. The description shall be a separate document apart from the plan of survey and shall be prepared on company letterhead that includes the survey contract vendor's

name, street and mailing addresses, telephone and fax numbers, company Email address, and company webpage (if any), and shall be signed, sealed and dated by the surveyor responsible for the survey. Each description shall have attached a reduced copy (8-1/2" by 11") of the survey plan from which it was written.

3.4.3 TOPOGRAPHIC SURVEYS

When topographic surveys are specifically requested as part of any Site-specific engagement, the topographic surveys, as a minimum, will be performed using conventional or GPS leveling methods that shall provide similar positional accuracy that would meet or exceed the former Federal Standard for Third Order, Class I accuracy for published NGVD 1988. The contour interval shown on any plans shall be ten (10) feet unless the site-specific RFP specifies an alternate interval. Unstable spot elevations on ground positions must be stated in feet to one decimal place (0.1'), and stable positions such as on monuments or concrete must be stated in feet to two decimal places (0.01'), unless the specifications and guidelines being furnished with the detail sheet for a site-specific engagement request specifies an alternative increment.

3.4.4 FRESHWATER WETLANDS SURVEY SERVICES

When work involving wetlands is specifically requested, it shall be one of two types identified at the time that price quotes are solicited for a site-specific engagement: SHOW WETLANDS or DELINEATE WETLANDS.

3.4.4.1 SHOW FRESHWATER WETLANDS

Site-specific engagements requesting that the wetlands be shown on the final plan of survey requires that the New Jersey Licensed Land Surveyor obtain copies of the appropriate New Jersey Freshwater Wetlands map for the area from the office of the county recorder or clerk. The upland limit line for those areas coded "01" on the Wetlands map must be reproduced, and an approximate estimate of wetlands area in acres on the plan must be derived to one decimal place (0.1 acre). The upland limit lines may be digitized or mechanically reproduced. The areas may be derived from the digitizing process or by planimeter, provided that the duplicated line is within 0.5 percent accuracy of the depiction of that upland limit line on the original source material. The mapped or digital source of upland limit line information must be provided (title of data or map, date, preparer, etc.).

3.4.4.2 FRESHWATER WETLANDS DELINEATION SURVEY

Site-specific engagements requesting that the wetlands be surveyed, delineated, or field investigated requires that the New Jersey Licensed Land Surveyor engage an environmentalist, acceptable to NJDEP, who is proficient in New Jersey freshwater wetlands investigations. The environmentalist shall delineate the wetland areas in the field in accordance with adopted wetlands criteria in New Jersey. The New Jersey Licensed Land Surveyor shall field-locate each marked position, add the wetlands areas to the survey plan, provide areas in acres to two decimal places (0.01 acre), and label the wetlands area on the survey. Additionally, the wetlands buffer areas of 50 feet, 100 feet, or 150 feet as indicated by the environmentalist must be shown on the survey, with buffer areas calculated to two decimal places (0.01 acre).

The survey plan shall contain a Wetlands Delineation Information block that includes the environmental firm's name, street and mailing addresses, telephone and fax numbers, and company Email address. The Wetlands Delineation Information block shall be signed and signed by the individual environmentalist responsible for the delineation. The date of the delineation and for whom it was prepared must appear in the Wetlands Delineation block on the survey. The environmentalist shall provide an original signature in the Wetlands Delineation Information block on the original survey plan and on each paper copy or print made. Other specifications and guidelines, if any are needed, shall be furnished at the time a wetlands delineation is requested as part of a site-specific engagement.

SEE ATTACHMENT 7 - WETLANDS DELINEATION INFORMATION

3.4.5 GEOGRAPHIC INFORMATION SYSTEM/LAND INFORMATION SYSTEM (GIS/LIS) SURVEY COVERAGE DATA DEVELOPMENT

When GIS/LIS Survey coverage data development is requested by the Using Agency, the New Jersey Licensed Land Surveyor is required to prepare a single layer digital drawing of the surveyed parcel property lines and any interior lot lines of the surveyed property from land survey plans, deed descriptions, or maps provided by the Using Agency. The file must be created at its true New Jersey Plane Coordinates NAD 1983 position and the view must be un-rotated so that the NJSPCS north points orthographically vertical in the screen. The polygon shall be created from the coordinate geometry of its survey point of beginning through the final course of survey and terminus point using deeds or surveys or digitized from mapping supplied.

The file is to be named using the four-digit owner Offer or File number or the first eight letters of the property owner's last name, unless multiple files are combined in a project area. If this is the case, the first eight letters of the project name shall be used. The file must be devoid of text annotation, color, symbol, or special text codes, and in a single layer. The data must be converted to a .dxf format and submitted on 3.5-inch high-density diskette or CDR media. Additional specifications and guidelines for a specific data collection activity may be furnished at the time that price quotes are solicited for a specific engagement.

3.4.6 OTHER SURVEYS

When other types of surveys such as ALTA or other professional surveying or geographic/land information system services are requested, specifications and guidelines will be furnished at the time that price quotes are solicited for a site-specific engagement.